

What is claimed is:

1. Washing apparatus comprising

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- a First Region (1), to which a wash material (4) is supplied,
- a Second Region (2), in which the wash material (4) is washed, and
- a Third Region (3), in which the wash material (4) is melted, and also

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- a flow resistance (6) provided between the Second Region (2) and the Third Region (3),

wherein the Second Region (2) is at least partially in the form of a column (2a) and wherein this column has a diameter of at least 300 mm.

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2. Washing apparatus according to claim 1, wherein the flow resistance is arranged non-rotatably about a central longitudinal axis (5) of the Second Region (2).

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3. Washing apparatus according to claim 1 or 2, wherein there is provided between the First Region (1) and the Second Region (2) a solid/liquid separation apparatus, preferably a filter (7), having a filtrate offtake line (8).

4. Washing apparatus according to claim 3, wherein the solid/liquid separation apparatus is in the form of a filter (7) in a wall (9) adjacent to the Second Region (2).

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5. Washing apparatus according to claim 4, wherein the wall (9) is arranged at an angle α in the range from > 0 and $< 90^\circ$, relative to the central longitudinal axis (5).

6. Washing apparatus according to any one of the preceding claims, wherein the flow resistance (6) has at least one opening (10).

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7. Washing apparatus according to any one of the preceding claims, wherein the flow resistance (6) is characterised by a relative free cross-sectional area in the range from > 0 to $< 100\%$, relative to the total area of the flow resistance.
- 5 8. Washing apparatus according to claim 7, wherein the free cross-sectional area is variable.
9. Washing apparatus according to one of claims 7 and 8, wherein the flow resistance (6) can be tempered.
- 10 10. Washing apparatus according to one of the preceding claims, wherein a conveying means (61) free of pulsation is provided upstream of the First Region (1) or at least partially in the First Region.
- 15 11. Washing apparatus according to claim 10, wherein the conveying means (61) free of pulsation has a conveyor spiral (61).
12. Purification apparatus comprising a crystal-producer (13) that is connected in a crystal-carrying way with the First Region (1) of a washing apparatus comprising
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 - a First Region (1), to which a wash material (4) is supplied,
 - a Second Region (2), in which the wash material (4) is washed, and
 - a Third Region (3), in which the wash material (4) is melted, and also
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 - a flow resistance (6) provided between the Second Region (2) and the Third Region (3),or the washing apparatus defined in one of the preceding claims.
13. Purification apparatus comprising a crystal-producer (13) that is connected in a crystal-carrying way with the First Region (1) of a washing apparatus comprising
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 - a First Region (1), to which a wash material (4) is supplied,
 - a Second Region (2), in which the wash material (4) is washed, and

- a Third Region (3), in which the wash material (4) is melted, and also
- a flow resistance (6) provided between the Second Region (2) and the Third Region (3).

- 5 14. Purification apparatus according to claim 12 or 13, wherein a dwell-time container (49) is provided between the crystal-producer (13) and the washing apparatus.
15. Synthesis device comprising a synthesis installation (14) and downstream a purification apparatus as defined in one of claims 12 to 14.
- 10 16. Synthesis device according to claim 15, wherein the synthesis installation (14) is a gaseous phase oxidation synthesis unit.
17. Method of purifying a wash material, wherein the wash material is supplied by way of
- 15 the First Region (1) of a washing apparatus defined in one of claims 1 to 11 and a target product is obtained.
18. Method according to claim 17, wherein the wash material contains at least 20 % of the target product by weight.
- 20 19. Use of the target product, obtainable by a method according to claim 17 or 18 in the production of food, polymers, fuels, lubricants, cleaning agents, dyes or pharmaceuticals.
- 25 20. Use of a washing apparatus according to one of claims 1 to 11 or of a purification apparatus according to claim 12 or 13 in the purification of target products such as food, monomers, fuels, solvents; or in waste-water treatment; or in isomer separation.